



How to Use This Booklet

Data visualization can make information more memorable, more persuasive, facilitate understanding and ultimately motivate action. And within human rights research, it can help investigators and researchers draw a bigger picture from individual human rights abuses by allowing them to identify patterns that may suggest the existence of abusive policies, unlawful orders, negligence, or other forms of culpable action or inaction by decision-makers.

The purpose of this activity is to explore some of the ideas and principles around designing effective data visualization for human rights advocacy.

This activity is broken into a series of six topics each with its own PDF guide.

In practice not every visualization process follows these exact steps in this same order. However, for a workshop setting, we present these as a way to walk through the topics. Each topic has a corresponding list of options and choices. Read through each topic and follow the instructions. Explore the options for each step as you progress.

The six steps are:

Step 1: Choose a human rights issue

Step 2: Discuss some kinds of data you might acquire

Step 3: Consider what question are you trying to answer with your data and visualization

Step 4: Choose a chart type for your visualization

Step 5: Consider some data and visualization hazards

Step 6: Consider some ways your charts can be improved

Step 6

Tips for Improvement

Here we will look at how to improve your data visualization.

Accuracy and clarity are essential to effective visualization, as well as memorability, persuasion, and motivation to action.

When designing your graphics, keep clarity and comprehension in mind and experiment with different chart types that might help your reader understand your story and its key elements.

6 | IMPROVEMENTS

Appropriate Scale

Though truncating the y-axis is generally discouraged, there may be some cases where a series small comparisons may need a truncated axis to be visible. Using appropriate scale in this way can clarify the information, though one should be careful not to deceive the user into thinking the comparisons are more exaggerated than they are.

Audience Analysis

Knowing your audience can help decide many aspects of your visualization and advocacy. Once you define your target audiences you can start to drill into their motivations: what do they care about? What do they fear? How can you help them take the actions you want? How can you mobilize your allies to reach them?

With target audiences in mind one can start to make decisions about messaging and framing, format and style, the level of simplicity vs complexity, etc. How can you best reach them? What kind of data literacy do they have? What is the best format to reach them? How can you apply pressure or incentivize them to take appropriate action?

Audience Participation

In addition to consent from research subjects, where possible data collection and selection should be conducted in partnership with the subject of its research, for instance, the selection of meaningful indicators.

Once you have developed your data graphics, it's a good idea to test them out, not just with sympathetic staff and allies, but with folks whose profile approximates your target audiences.

Simplification

Simplification is a matter of removing design elements from a visualization that do not contribute knowledge or insight. Unnecessary design elements could include borders, heavy grid lines, shadows, extraneous colors, gradients, textures, or other decorative elements. These are also referred to as “chartjunk” by Edward Tufte in his book [*The Visual Display of Quantitative Information*](#).

The result of simplification is that it reduces the number of visual elements on a page competing for attention. This reduces cognitive load and can help draw the reader's attention to the most important findings. Combining simplification with emphasis is a powerful way to increase the force and focus of one's message.

Emphasis

In communications for advocacy, time is short and it's best to call attention to the main takeaway as quickly and clearly as possible.

One way to do this is creating a visual hierarchy within your information.

Visualization studies also found that the most recognizable visualizations had a clear center of interest. Eye-tracking software determined that the most recognizable visualizations had a single focus, whereas the least recognizable visualizations had less singular patterns.

Visualizations can use emphasis and contrast by differentiating the key figure with color, shape, length, or other visual characteristic.

The order of marks and labels can also create both a visual and logical hierarchy: categories can be ordered alphabetical or by value.

Titles, Labels, and Annotations

Clear titles and text annotation help readers interpret and understand abstract marks and visualizations, and help provide narrative framing.

Titles, labels, and annotation also help readers recall the message. Across all textual elements, the title is among the most important. Specific titles reinforcing the visualizations main message often aided recall. Visualizations with non-specific titles can benefit from other explanatory texts such as paragraphs and labels. Visualizations with titles at the top, above the visualization also improved recall.

Titles and annotation should be descriptive and clear, but also concise. Too much text can overwhelm and compete with the visualization. Similarly, font choice and text styling should not compete with the graphics.

Finally, in order to minimize the interference of labels on the actual graphic, legends, placed at the bottom or to the side of the visual, can help.

For more about visualization, annotation, and memorability, see [Beyond Memorability: Visualization Recognition and recall](#).

Narrative Framing

Abstract shapes and colors in themselves do not carry meaning. Careful annotation can assign meaning, scale, and scope to the representation, but narrative framing can help readers understand the meaning and significance of a given data visualization, and add emotional impact.

One form of narrative framing walks readers through the issue and the graphic, building the story step-by-step.

Stories have a beginning, middle and end. They have actors, evoke emotions and a meaningful climax. Stories guide the audience on a journey.

Data visualizations can be used to walk a reader through an issue in stages. A given data visualization can animate or change over the course of the story, or else different visualizations can be used at different stages of the story.

Concrete Scale

A “concrete scale” is a technique that can be used to visually relate, re-express and compare measures of extreme magnitudes or unfamiliar units.

Concrete scales use familiar and culturally appropriate visual metaphors to depict simple relationships of complex measurements, making it easier for a viewer to comprehend the measure.

Examples of this are: conversion/ comparison, containment/nesting, unitization (defining an object as a new unit of measure), and analogy.

For more about concrete scales, see [Using Concrete Scales: A Practical Framework for Effective Visual Depiction of Complex Measures](#).

Redundancy

Data redundancy refers to visually encoding the data in more than one way—for example, including the unit values on a bar chart where the length of the bar also indicates value.

Redundancy helps recall and understanding. Both message and data redundancy make visualizations more memorable. Message redundancy presents the conclusion or message of the visualization in multiple ways to the viewer.

Visual redundancy should be balanced against clutter, and should not detract from the charts emphasis.

Near and Far

This presentation technique balances the macro view with close up of individual data points, for instance combining individual profiles, photos, or testimonies with a statistical view of broader systemic patterns.

Studies have shown that it is difficult for readers to grasp very large numbers outside of their experience, or to empathize with large numbers of victims. The effect, known as “[psychic numbing](#)” describes how empathy and willingness to act decreases as the number of victims increases.

The “near and far” approach combines the empathy and personal, human interest angle as context for and of the larger, numeric trends.

[This article](#) on the micro-macro view of data visualization goes into more detail.

Visual Grammar

If using many charts through a project, it may make sense to use consistent chart types throughout. While using a variety of forms and formats may make for a visually textured project, avoid asking the reader to compare too many different chart types. This creates additional cognitive load and can be distracting.

Related to consistency of chart types, it is also a good idea to establish a consistent use of color for data elements that appear in a variety of different charts. Establishing a consistent color palette or a grammar of how color is used throughout a project enables the reader to follow the thread of your story through the project with less effort.

Multiples

Instead of trying to cram too much detail into a given chart or map, it may make sense to create multiple versions of the same graphic format, each showing different data or a different state.

Multiples (sometimes called “Small Multiples”) are charts or maps using the same scale and axes but displaying different data. Using the same chart size and format allows the user to visually compare similarities and differences. Multiples allow for a more nuanced comparison compared to trying to show everything in one chart.

Tone & Visual Rhetoric

The tone of a graphic is determined by the sum of its details: the style of the typography, the rendering of marks, the voice of the text, the color space, the choice of imagery and image treatment. These add up to creating an overall mood. Often it may be advantageous for a graphic to appear objective, neutral and dispassionate. At other times a more sensational, urgent, or emotive approach may best serve your goals.

Sometimes referred to as “aesthetics,” the choice of tone of your graphics should serve both your information as well as your advocacy approach and target audiences, and ideally take cues from your overall communications style and strategy.

Visual Novelty

A powerful way to catch people's attention is the use of visual novelty or user experience. Unexpected visual formats (or even familiar forms put into an unexpected context) can pique an audience's curiosity.

However, this should be balanced by the fact that audiences tend to read best what they read most — that is, chart types that are the most familiar. An audience confronted with an unusual form or experience may be confused and may need to be guided towards interpreting and understanding the presentation.

Visual novelty should remain in the service of your data, your message, and your advocacy objectives. Gratuitous novelty also has the potential make a project easy to dismiss as frivolous.

Additional Resources

[*The Visual Display of Quantitative Information*](#) by Edward Tufte

Two books published by Nancy Duarte offer an excellent primer for visual storytelling: [*Slide:ology: The art and science of creating great presentations*](#) and [*Resonate: Present Visual Stories that Transform Audiences*](#)

[*Thinking with Type*](#) by Ellen Lupton

About this Booklet

This activity is the result of a research collaboration between the Center for Human Rights and Global Justice and Tandon School of Engineering at New York University, and was funded with a grant from the John D. and Catherine T. MacArthur Foundation.

The booklet was authored by John Emerson and Margaret Satterthwaite with help from contributors Brianne Cuffe and Sidra Mahfooz.

It was inspired by Shiqing He and Eytan Adar's [Vizit cards](#), [The Data Visualisation Catalogue](#) by Severino Ribecca, and Tamara Munzner's [Nested Model for Visualization Design and Validation](#).

For more information about data visualization and human rights along with links to resources, research and tools, visit our project page at <http://visualizingrights.org>.

Version 0.1, published October 2017. The text of this booklet is licensed under a [Creative Commons Attribution-Share Alike 4.0 License](#). Images are not covered by this license.

Cover illustrations by [John R. Holmes](#) for the Open Society Justice Initiative report [Presumption of Guilt: The Global Overuse of Pretrial Detention](#) (2014.)

Please send suggestions, comments, or feedback to john@backspace.com.